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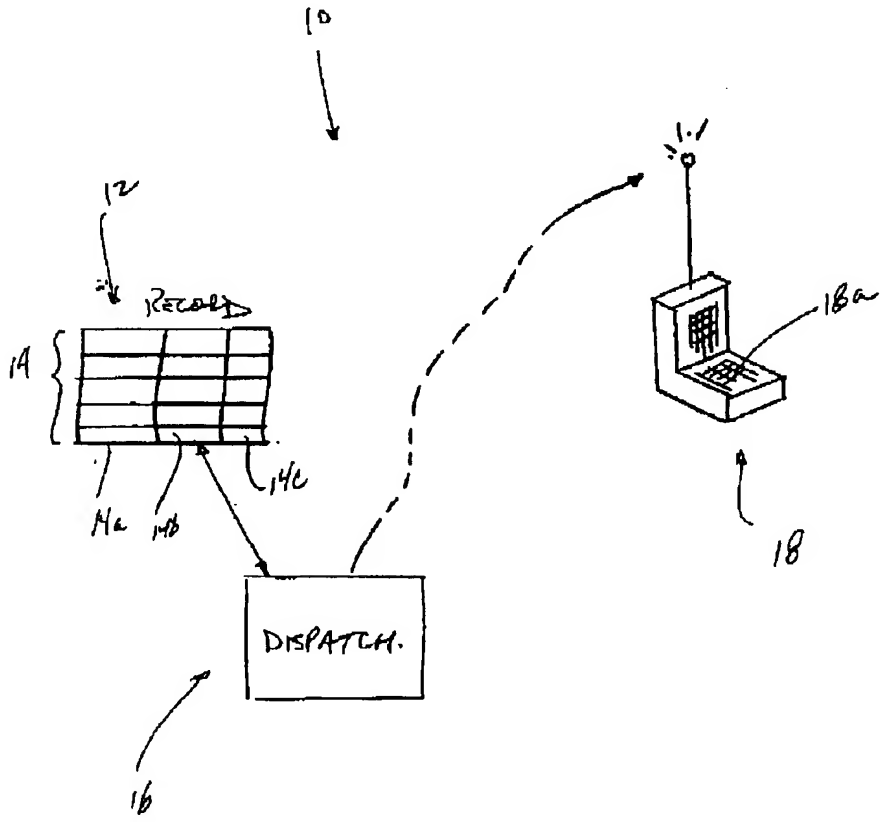
(54) **SYSTEME DE RAPPEL INFORMATISE**

(54) **COMPUTER REMINDER SYSTEM**



(57) Disclosed herein is a reminder system having a reminder recording module, the recording module including a plurality of reminder sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment, a remote register unit for receiving reminder data from the reminder recording module; a communication channel joining the reminder recording module to the remote register unit; and a dispatch module responsive to the reminder recording module to convey data according to the reminder data segment to the remote register unit at a time corresponding to the trigger time segment.

ABSTRACT

A REMINDER SYSTEM

Disclosed herein is a reminder system having a reminder recording module, the recording module including a plurality of reminder sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment, a remote register unit for receiving reminder data from the reminder recording module; a communication channel joining the reminder recording module to the remote register unit; and a dispatch module responsive to the reminder recording module to convey data according to the reminder data segment to the remote register unit at a time corresponding to the trigger time segment.

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

The present invention relates to the deadline reminder systems.

2. DESCRIPTION OF THE RELATED ART

In this world of telecommunications and computer power, never has there been more tools for the field worker to keep in touch with his office. His cell phone and his pager hang by his side to await the all-important call or page. His notebook computer allows him to manage great quantities of data without so much as casting a shadow over his office. However, with this new found freedom comes an even more busy lifestyle and the need for the field worker to be reminded of important upcoming events to attend and tasks to carry out.

Software programs are currently available which can call a pager service and send out numeric messages using standard telephone dialing tones. Most corporate email systems are provided with such features. These current programs also provide alphanumeric paging, to provide a short text message to be transmitted to appear on the screen of the pager. These programs do not generally allow the message to be sent out at a particular time according to the message itself.

Most computers are also provided with a voice modem, which allow personal computers to be used as answering machines. Computer operating systems, such as WINDOWS sold by MICROSOFT, allow other programs to access the computer's voice modem, by way of application programming interfaces (API's) which are resident in the operating systems. These API's allow the programs to access and control what a voice modem outputs on a telephone line and what the same modem receives on the telephone line.

There remains a need for conveying certain reminder messages to a remote site at an appropriate time according to the reminder message itself.

It is therefore an object of the present invention to provide an improved method by which a remote field worker track and monitor his important meetings and daily tasks.

It is another object of the present invention to provide a system for conveying a number of reminder messages through the course of a day wherein each message is sent an appropriate period in advance of the subject event or task.

SUMMARY OF THE INVENTION

Briefly stated, the invention involves a reminder system comprising:

a reminder recording module, the recording module including a plurality of reminder sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment,

a remote register unit for receiving reminder data from the reminder recording module;

a communication channel joining the reminder recording module to the remote register unit; and

a dispatch module responsive to the reminder recording module to convey data according to the reminder data segment to the remote register unit at a time

corresponding to the trigger time segment.

In another aspect of the present invention, there is provided a method of conveying a reminder message to a remote site, comprising the steps of:

a) providing a register to store a plurality of reminder messages, each of which is associated with a trigger time value;

b) monitoring a current time value;

c) iteratively comparing the current time value with a first of the trigger time values, until the current time value corresponds to a first trigger time value;

d) establishing a transmission link with the remote site; and

e) transmitting the message to the remote site.

In still another aspect of the present invention, there is provided a computer-readable medium having stored thereon computer-executable instructions to transmit a plurality of reminder messages to a remote site by performing the steps comprising:

a) allocating computer memory to store a plurality of reminder messages, each message including a reminder data segment and a trigger time segment;

b) monitoring a current time value;

c) iteratively comparing the current time value with a trigger time segment of a first of the reminder messages, until the current time values corresponds to the trigger time segment of the first reminder message;

d) establishing a transmission link with the remote site; and

e) transmitting the reminder data segment to the remote site.

In still another aspect of the present invention, there is provided a reminder system comprising:

a reminder recording module, the recording module including a plurality of reminder sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment; and

a dispatch module responsive to the reminder recording module to convey data according to the reminder data segment to a remote register unit at a time corresponding to the trigger time segment.

In yet another aspect of the present invention, there is provided a system for dispatching a plurality of messages to at least remote site, comprising input means allowing a user to record a plurality of audio messages and to establish a dedicated dispatch time for each audio message, and dispatch means to dispatch the audio message at the dedicated dispatch time.

Preferably, the input means includes a computer capable of generating a digital audio

file bearing the message and the dispatch means includes a computer modem.

Preferably, the remote site is a cellular phone and the dispatch unit is operable to delay the dispatch of the message after the dispatch unit initiates a communication link with the phone. More preferably, the dispatch means is operable to repeat the dispatch of the message to the cellular phone.

BRIEF DESCRIPTION OF THE DRAWINGS

Several preferred embodiments of the present invention will now be described, by way of example only, with reference to the appended drawing in which:

Figure 1 is a schematic view of a reminder system;

Figure 1a is a schematic view of a portion of the system of figure 1;

Figure 2 is another schematic view of the system of figure 1;

Figure 3 is a schematic view of one operational phase of the system of figure 1; and

Figure 4 is a schematic view of another operational phase of the system of figure 1;

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the figures, there is provided a reminder system 10 having a reminder recording module in the form of a register 12 which includes a plurality of reminder sectors

14, each sector corresponding to a given discrete reminder message for an upcoming event or task and including a trigger time segment 14a, a reminder data segment 14b and a delay segment 14c. In this case, the delay segment may be constant for all of the sectors and may simply be a single entry. Preferably, each reminder data segment is stored in MM API format as an audio message file, such as for example a 'wav' file. The reminder data segment may also be in the form of an alphanumeric message or in some other digital or analog form. The register may also, if desired, store one or more remote register addresses, such as a target telephone number or other reminder target address code, such as an Internet address or a network address for each reminder message. The register may thus store a single remote register address for each message or a number of addresses for each reminder message. Alternatively, the remote register address may be constant for all of the reminder messages in which case the register may store a single address. The register may also store a repeat code for one or all of the reminder sectors, allowing the reminder message to be sent repeatedly in a signal transmission as will be described.

A dispatch module 16 communicates with the reminder recording module 12 and is operable to convey data according to the reminder data segment to a remote register unit, such as a cellular phone as shown at 18, by way of a communication channel such as a high or low frequency carrier signal, for example to transmit the message to a remote register coupled with a radio receiver or as included in a cellular telephone. Alternatively, the communication channel may be a hardwired such as a computer network, such as the Internet or an Intranet, where the remote register may be a server in which case the presentation portion may be a PC to download the reminder message data therefrom.

Preferably, the remote register unit also includes a presentation portion 18a which, in the case of the cellular phone 18, may be the speaker or the digital display or a combination of

the two, in order that the message can be presented in a manner recognizable to the operator at the remote site. However, the presentation portion 18a may, in other cases, be separate from the remote register unit, such as by another transmission link, such as to a radio receiver, for example.

The dispatch module is operable in a first phase to establish a transfer connection or transmission link between the reminder recording module and the remote register unit at a time according to the trigger time segment, and in a second phase to transmit the reminder data segment. The dispatch module may also be operable in a third phase to delay the onset of the second phase until after the delay period has elapsed as recorded by the register 12.

The dispatch module is also operable in a fourth phase following the third phase to repeat transmission of the reminder data segment. The dispatch module is operable in a fifth phase to query the reminder record module for another reminder sector. The dispatch module may include an application programming interface and is preferably a computer modem capable of supporting the INTERACTIVE_VOICE modem protocol which is a fixture in the WINDOWS operating system sold by MICROSOFT.

Thus, the time at which the message is conveyed is not simply a time routinely chosen by the dispatch module 16 according to such things as off-peak telephone calling periods or the like, but rather at a time which may be selected by the operator to provide him with sufficient lead time to carry out the subject task or to attend the subject event, for example. There may also be a number of trigger time segments for a particular reminder message, such as a six hour advance reminder, a two hour advance reminder and a final 15 minute advance reminder, again as deemed appropriate for a particular reminder message.

The dispatch module is operable to convey either the reminder data segment itself, or a signal representative of the reminder data segment, to the remote register unit. In other words, where the reminder data is in a 'wav' file, the dispatch module may merely retransmit substantially all of the file so that the remote register unit plays back substantially the same wave file. Alternatively, the register may record a number of preset codes such as for example ATTEND MEETING , or PURCHASE GIFT , each massage being synthetically produced and the register in this case merely recording a code to direct the dispatch module to play a selected one of the pre-stored reminder messages. If desired, the remote register unit may itself be associated with a local storage unit to store the pre-stored reminder messages. These pre-stored reminder messages may be entered as need be by the user as a given reminder segment followed by a time segment. In this case, the message presented at the remote register unit may be a synthetic voice repeating the message and synthesizing the time for the action, for example:

PURCHASE GIFT [pause] AT FIVE O'CLOCK PM .

In this particular example, the trigger time segment would be different from the time segment, say in this case 3:30, so that the message is sent at 3:30 allowing the person at the remote site sufficient time, as he calculated before hand, to in fact purchase the gift at 5:00 pm.

The system may, if desired, be a hardwired device which has an output to connect with an appropriate communications port on a telephone, for example. Alternatively, the system may be in the form of a general purpose computer, such as a PC, which is programed to transfer the reminder data to the remote register unit by use of the computer's modem, a network card or other computer communications channel interface.

Referring to figure 2, the dispatch module includes a MMAPI unit 20 and a modem 22. A controller 24 communicates with the register 12, a hard drive storage unit 26 and the MMAPI unit 20, and an input unit 28 via a data channel 30. The input unit 28 also communicates with the register 12 and the storage unit 26 via the data channel 30 and may include, for example, a microphone in the case where the reminder data being stored is a wav file, which can then be stored on the hard drive while a storage address for the particular wav file is later retained by the register 12, under the control of the controller 24. The input device may also include a keypad for the entry of the trigger time data. The input device may also, if desired, record or receive a code corresponding to a delay segment indicating that the message should be transmitted only after a period of time corresponding to the delay following the onset of a transmission link with the remote site. The input device may also be arranged to input the other portions of the reminder sectors as described above.

The operation of the system 10 is illustrated in figures 3 and 4. Referring to figure 3, in one operative mode, the controller is in a ready mode and conveys a signal to the input device to be ready to receive an input command. For example, the input command may be a digitally generated audio message, such as ***PURCHASE GIFT AT 5:00 FOR JANICE*** . The controller may then await an entry from a keypad for a trigger time segment, for example ***1-3-0-0***, standing for 1300 hours or 1:00 pm and the delay segment, if applicable. The controller then initiates a wav file to be generated for the recorded message and to assign the wav file to a particular address on the hard drive which address is then entered in the register. Similarly, the register enters the code for the trigger time segment and the delay segment, if applicable. The controller is then ready for another entry.

Referring to figure 4, in another operative mode, the system reads a first entry of a reminder message and its associated trigger time value and delay segment. The controller then

initiates a clock monitoring sequence shown at 50 to monitor a current time value, which may be, for example, a binary clock signal from the computer's internal clock. The controller then iteratively compares the current time value as it advances, or a multiple thereof, for example each minute or each five minutes, with a first of the trigger time values, until the current time value corresponds to a first trigger time value. This would occur, for example, when the current time value reaches 1300 hours or within a few minutes of 1300 hours depending on the multiple of the current time value being compared.

The controller, as shown at 52, then initiates the modem through the MMAPI unit to establish a transmission link with the remote site, in this case the cellular phone 18, thus causing the remote site to ring the cellular phone to alert the remote user of the incoming call. The controller may then wait for a handshake protocol sequence to indicate that the transmission link is open, for example by the fact that the remote user has answered the phone. When the link is established, the controller awaits for a period of the delay, as shown at 54, if a delay segment exists in the register or otherwise provided for the particular reminder message in question. With the delay executed, the controller then initiates a transfer of the wav file from the hard drive storage through the data channel to the modem where the file is then transferred to the remote site over the transmission link. The register may, if desired, also record a preset number of repeat values, allowing the controller to repeat the transmission of the wav file to the remote site.

In this case, where the register has stored a number of remote register addresses for a particular message, the controller as shown at 56 initiates the modem to begin the transmission to the next remote register address and so on until the message has been broadcasted to all of the registers whose addresses are stored for that particular reminder message.

In one embodiment, the system is embodied in a program operating on a general purpose computer, such as a personal computer with a WINDOWS operating system. In this case, the program finds a valid modem, for example one which can support the INTERACTIVE_VOICE protocol, in which case the modem can input and output voice or audio information. Then, using the reminder target address, such as a phone number stored for each reminder segment, the controller dials the target phone number. In one example of the system, as soon as the number is dialed, the call is considered CONNECTED, thereby allowing the transmission to occur without the need for the modem to recognize whether the call has in fact been answered. Therefore, the delay can be calculated to take into account the time required to establish a cellular phone call. To ensure that the message will be successfully transmitted, the controller may repeat the message a number of times, according to the repeat code, so that in case the user takes a long time to answer, he can get the end of its message. By having the message repeated more than once, the user may be assured of hearing the entire message at least once.

Thus, using a TAPI (telephony API) protocol, the operating system is interrogated to get a handle, a pointer to the audio device that has been opened when the call is considered connected. This handle refers to the wave output device that the modem has become by connecting an INTERACTIVE_VOICE call. Using the MMAPI unit 20, the wave file stored with the event is played, not over the PC speaker through the sound card, but rather through the alternative voice device which exists because of the modem call. The wav file may then played a number of times, following the repeat value in the register for that particular reminder message. When the wav file has played a number of times, the call is released, the modem goes on hook and the event is over. The controller then continues monitoring the current time value to be ready convey the reminder message.

Thus, the system 10 may be provided in the form of a computer-readable medium having stored thereon computer-executable instructions to transmit a plurality of reminder messages to a remote site by performing the steps comprising:

a) allocating computer memory to store a plurality of reminder messages, each reminder message including a reminder data segment and a trigger time segment;

b) monitoring a current time value;

c) iteratively comparing the current time values with a trigger time segment of a first of said reminder messages, until one of said current time values corresponds to the trigger time segment of the first reminder message;

d) establishing a transmission link with said remote site; and

e) transmitting said reminder data segment to said remote site.

Desirably, the wherein step d) may occur after step c) and step d) may also includes the step of establishing a telephone connection. The instructions may also include, before step e), the step of counting a predetermined period of delay time. In some cases, it is desirable to repeat step e).

CLAIMS

1. A reminder system comprising:

a reminder recording module, said recording module including a plurality of reminder sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment,

a remote register unit for receiving reminder data from said reminder recording module;

a communication channel joining said reminder recording module to said remote register unit; and

a dispatch module responsive to said reminder recording module to convey data according to said reminder data segment to said remote register unit at a time corresponding to said trigger time segment.

2. A system as defined in claim 1 wherein said dispatch module is operable to convey said reminder data segment to said remote register unit.

3. A system as defined in claim 1 wherein said dispatch module is operable in a first phase to establish a transfer connection between said reminder recording module and said remote register unit at a time according to the trigger time segment, and in a second phase to transmit said reminder data segment.

4. A system as defined in claim 3 wherein said reminder recording module records a delay period, said dispatch module being operable in a third phase to delay the onset of the second phase until after said delay period has elapsed.

5. A system as defined in claim 4 wherein said dispatch module is operable in a fourth phase following said third phase to repeat transmission of the reminder data segment.

6. A system as defined in claim 3 wherein said dispatch module includes an application programming interface;

7. A system as defined in claim 3 wherein the reminder data segment is stored in MM API format.

8. A system as defined in claim 3 wherein the reminder data segment is an audio message file.

9. A system as defined in claim 8 wherein said dispatch module includes a computer modem.

10. A system as defined in claim 1 wherein said dispatch module is operable in a fifth phase to query said reminder record module for another reminder sector.

11. A method of conveying a reminder message to a remote site, comprising the steps of:

a) providing a register to store a plurality of reminder messages, each of which is associated with a trigger time value;

b) monitoring a current time value;

c) iteratively comparing said current time value with a first of said trigger time values, until the current time value corresponds to a first trigger time value;

d) establishing a transmission link with said remote site; and

e) transmitting said message to said remote site.

12. A method as defined in claim 11 wherein step d) occurs after step c).

13. A method as defined in claim 12 wherein the step d) includes the step of establishing a telephone connection.

14. A method as defined in claim 11, wherein before the step e) the method further comprises the step of

f) counting a predetermined period of delay time.

15. A method as defined in claim 14 wherein step e) is repeated.

16. A computer-readable medium having stored thereon computer-executable instructions to transmit a plurality of reminder messages to a remote site by performing the steps comprising:

a) allocating computer memory to store a plurality of reminder messages, each

reminder message including a reminder data segment and a trigger time segment;

b) monitoring a current time value;

c) iteratively comparing the current time values with a trigger time segment of a first of said reminder messages, until one of said current time values corresponds to the trigger time segment of the first reminder message;

d) establishing a transmission link with said remote site; and

e) transmitting said reminder data segment to said remote site.

17. A method as defined in claim 16 wherein step d) occurs after step c).

18. A method as defined in claim 17 wherein the step d) includes the step of establishing a telephone connection.

19. A method as defined in claim 18, wherein before the step e) the instructions further comprise the step of

f) counting a predetermined period of delay time.

20. A method as defined in claim 19 wherein step e) is repeated.

21. A reminder system comprising:
a reminder recording module, said recording module including a plurality of reminder

sectors, each sector corresponding to a given reminder message and including a trigger time segment and a reminder data segment; and

a dispatch module responsive to said reminder recording module to convey data according to said reminder data segment to a remote register unit at a time corresponding to said trigger time segment.

22. A reminder system as defined in claim 16 wherein said dispatch module is operable to establish a communication channel with said remote register unit.

23. A reminder system as defined in claim 17 wherein said communication channel is a telephone link.

24. A system for dispatching a plurality of messages to at least remote site, comprising input means allowing a user to record a plurality of audio messages and to establish a dedicated dispatch time for each audio message, and dispatch means to dispatch said audio message at the dedicated dispatch time.

25. A system as defined in claim 24 wherein said input means includes a computer capable of generating a digital audio file bearing said message.

26. A system as defined in claim 25 wherein said dispatch means includes a computer modem.

27. A system as defined in claim 26 wherein said remote site is a cellular phone.

28. A system as defined in claim 27 wherein said dispatch unit is operable to delay the dispatch of said message after the dispatch unit initiates a communication link with said phone.

29. A system as defined in claim 28 wherein said dispatch means is operable to repeat the dispatch of said message to said cellular phone.

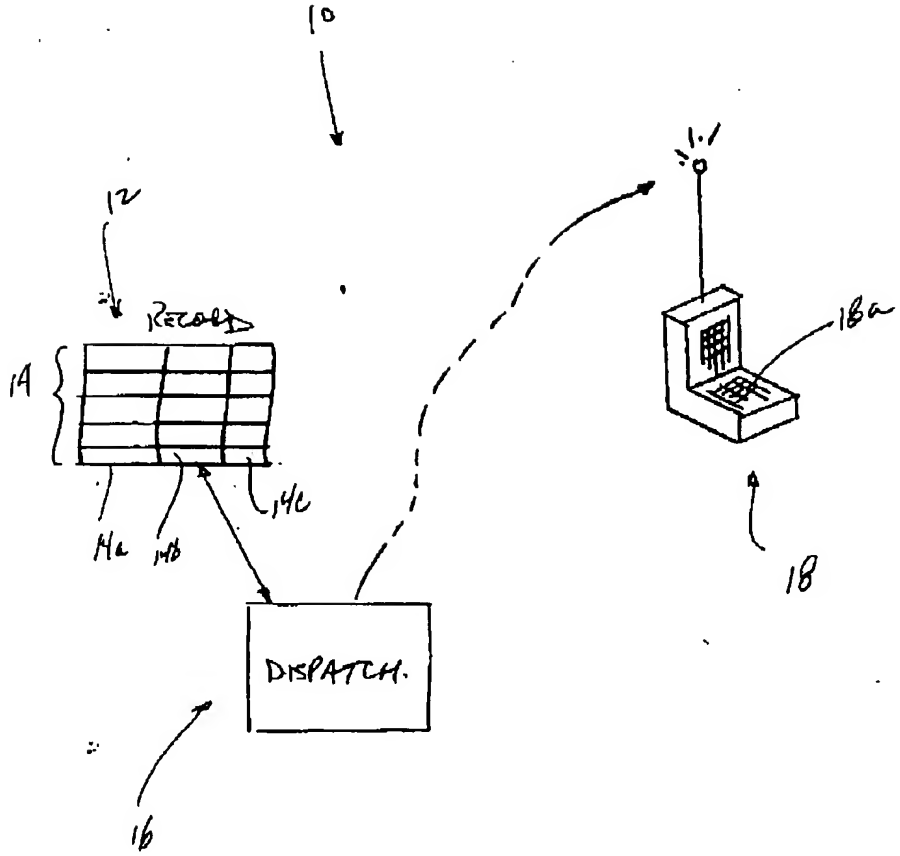


Fig 1

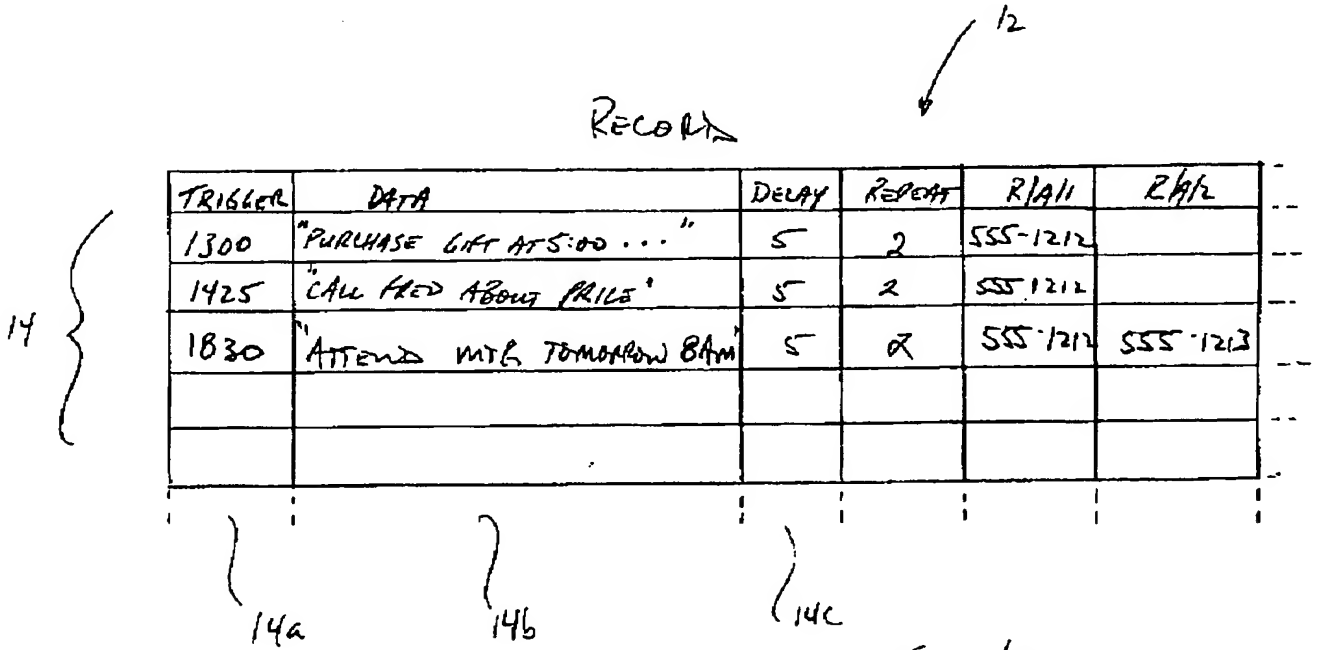


Fig 1a

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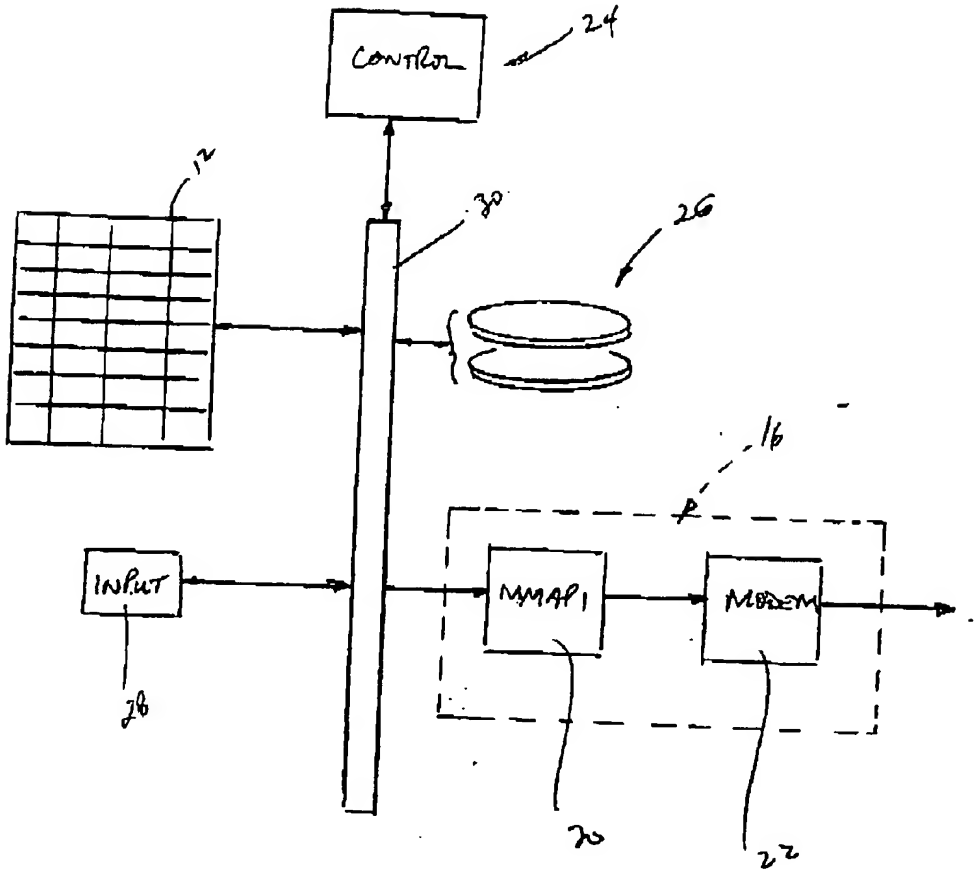

Fig 2

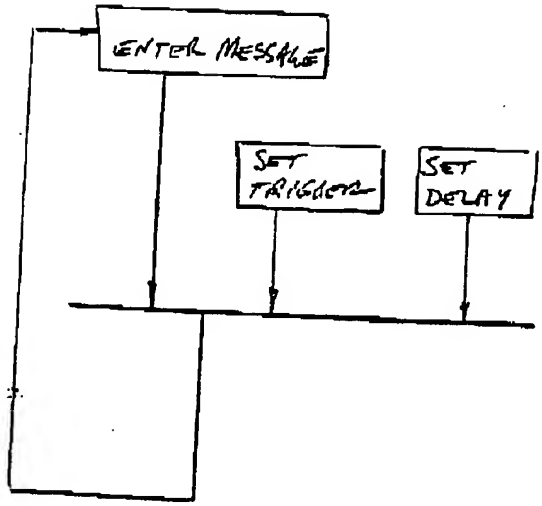
ENTER MESSAGE
SET TRIGGER
SET DELAY

Fig 3

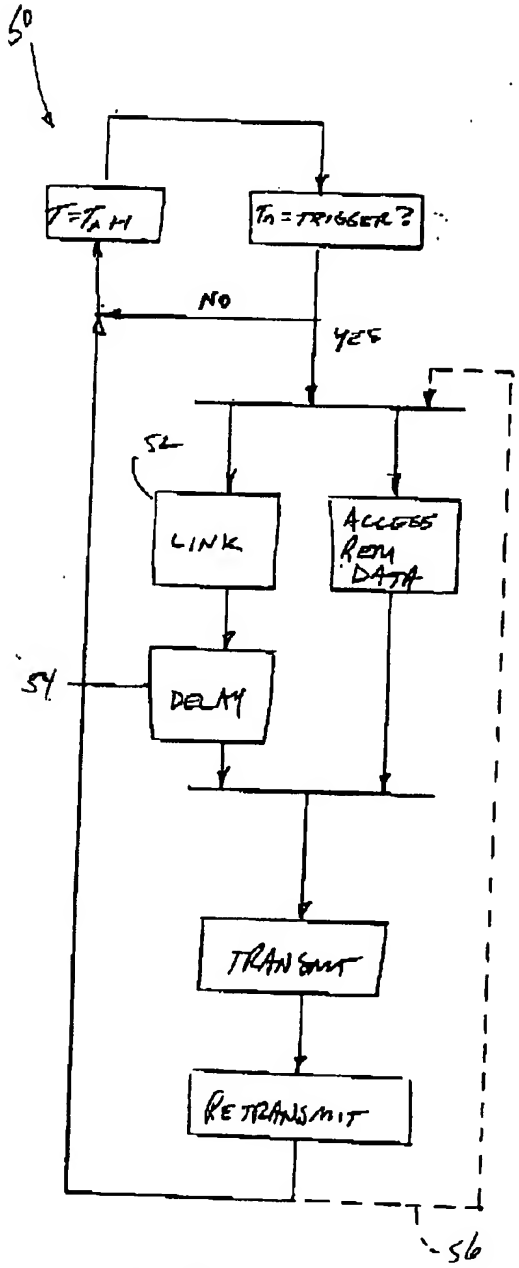
50
T=TAM
Tn=TRIGGER?
NO
YES
52
LINK
ACCESS REM DATA
54
DELAY
TRANSMIT
RETRANSMIT
56

Fig 4

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